Installation Instructions

LM4A MVOLT Dimmer Module

READ AND FOLLOW ALL SAFETY INSTRUCTIONS!
SAVE THESE INSTRUCTIONS AND DELIVER TO OWNER AFTER INSTALLATION

IMPORTANT SAFEGUARDS

When using electrical equipment, basic safety precautions should always be followed including the following:

READ AND FOLLOW ALL SAFETY INSTRUCTIONS.

- Do not use outdoors.
- Use only indoors in dry, relatively clean, non-condensing humidity environments.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than its intended use.

SAVE THESE INSTRUCTIONS

To reduce the risk of death, injury or property damage from fire, electric shock, cuts, abrasions, falling parts, and other hazards:

- Service of the equipment must be performed by qualified service personnel.
- Installation and maintenance must be performed by a person familiar with the construction and operation of this product and any hazards involved. All applicable codes and ordinances must be followed.
- Read this document before installing, servicing, or maintaining this equipment. These instructions do not cover all installation, service, and maintenance situations. If your situation is not covered, or if you do not understand these instructions or additional information is required, contact Acuity Controls.

WARNING

Before installing, servicing, or maintaining this equipment, follow these general precautions.

To reduce the risk of electrocution:

- Make sure the equipment is properly grounded.
- Always de-energize any equipment before connecting to, disconnecting from, or servicing the equipment.

To reduce the risk of fire:

- Use supply conductors with a minimum installation temperature rating as specified.

To reduce the risk of personal injury from cuts, abrasions:

- Wear gloves to prevent cuts or abrasions from sharp edges when removing from carton, handling and maintaining this equipment.
- Do not install damaged equipment.

Acuity Controls, a division of *Acuity Brands* Inc., assumes no responsibility for claims arising out of improper or careless installation or handling of this product.

SAVE THESE INSTRUCTIONS

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Part No. 912-00001-006 Rev D

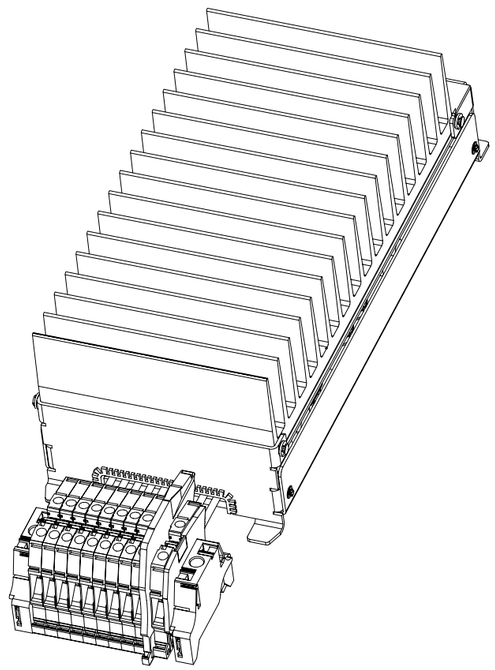
Installation Instructions

LM4A MVOLT Dimmer Module

The LM4A dimming module can dim Incandescent, Magnetic Low Voltage, Electronic Low Voltage, 2 and 3 Wire Fluorescent, and Forward/Reverse phase LED load types. The LM4A is intended for use with a 120-277V, 50/60Hz circuit. See below for full details.

Important Module Information

1. Ambient Conditions:
   Maximum Ambient Temperature: 104°F/40° C
   Minimum Ambient Temperature: 32°F/0°C
   Relative Humidity:10-90% Non condensing
2. The LM4A MVOLT module is rated for 120-277V, 50/60 Hz operation.
   Maximum ratings:
   Max Load per module: 2000VA
   Max Load per dimmer channel: 1000VA
3. Verify that the load type being connected is compatible with the dimmer module type and capacity as listed on the module label.
4. Each module **MUST** be fed with a **single phase branch circuit.**
5. Test all branch circuits for short circuits **prior** to energizing the module.
6. Use only copper conductors with 90°C insulation rating or higher.
7. Dimmer output terminal block specifications:
   (1) #10, #12, #14 AWG or (2) #14 AWG
   conductors maximum.
8. Each LM module is bonded to the mounting surface using the (2) supplied #8-18 x 5/16" type B serrated mounting screws. Both screws must be used and torqued to a min 24 inch-lbs to insure a good ground. If these screws are lost replace ONLY with screws of this type to insure proper grounding.
9. Each module is shipped with a shorting jumper across all outputs. Check all output circuits for shorts, then remove the jumper prior to attempting to dim any loads.



LM4A MVOLT Dimmer Module

LM4A Compatible Load Types

LM4A MVOLT Compatible Load Types
- 120/277V, 50/60Hz
  - Incandescent/Inductive
  - Magnetic Low Voltage
  - Electronic Low Voltage
  - 2 Wire Fluorescent (Mark X)
  - 3 Wire Fluorescent (Hi-Lume)
  - LED (Forward or Reverse phase cut ONLY)

Note:
Lutron Hi-Lume 3-wire dimming ballast applications require a minimum load of 10 ballasts (0.3W) per dimmer for proper operation. If 10 or more Hi-Lume ballasts per circuit are not present, add Acuity Controls accessory LMP SNB snubber for proper operation.

Table 1 - LM4A MVOLT Dimmer Module Configuration and Capacities

LM4A MVOLT Four 120/277V OUTPUTS Total Module Capacity = 16.6 Amps (2000VA@120V) 7.2 Amps (2000VA@ 277V)		
Circuit(Color)	Type	Capacity
1 Red	SW HOT	8.3A Max @ 120V
1 Orange	DIM HOT	3.6A Max @ 277V
2 Red	SW HOT	8.3A Max @ 120V
2 Orange	DIM HOT	3.6A Max @ 277V
3 Red	SW HOT	8.3A Max @ 120V
3 Orange	DIM HOT	3.6A Max @ 277V
4 Red	SW HOT	8.3A Max @ 120V
4 Orange	DIM HOT	3.6A Max @ 277V

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Installation Instructions

LM4A MVOLT Dimmer Module

Before You Start

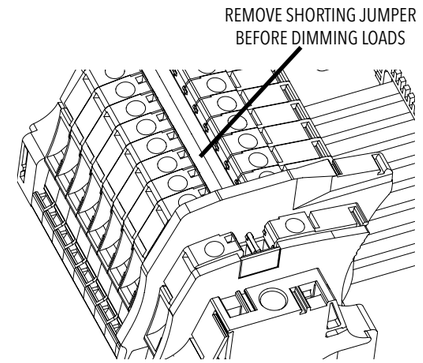
1. Disconnect power prior to installation or servicing.
2. Install in accordance with the National Electrical Code and any other codes which may apply.
3. Use only as intended and to control only loads described in these instructions.
4. Use only accessories recommended by Acuity Controls.
5. Use only at the voltage listed on the product and component labels.

Module Installation and Wiring

1. MOUNT DIMMER MODULE(S)
   Mount the LM4A module by inserting the mounting tabs on the left into the slots in the back of the enclosure. Secure it with the (2) mounting screws provided. *See Figures 1 and 3* for details.
2. CONNECT MODULE DATA NETWORK
   Connect the module data network connector to the terminal on the side of the LM module. *See Figures 2 and 4* for details.
3. Repeat steps 1 & 2 for additional modules.
4. PROVIDE PRIMARY POWER WIRING TO MODULE INPUTTERMINAL
   Each module MUST be fed with a single phase 15A or 20A input circuit. Connect each module's feed input terminal blocks (hot and neutral) to the branch breaker and neutral bar in the LMP panel (See *Figure 5)*, or to a separate breaker panel if used in a feed through application (See *Figure 6)*. Use an appropriately sized conductor.
   Torque the terminal block screws to 8.9 inch-lbs.
5. CONNECT LOAD WIRING
   Connect each load circuit to the appropriate output terminal block(s) of the LM4A. See *Figure* 7 for typical details.
   Test for short circuits prior to energizing module!
   Every load output should be checked for short circuits to prevent damage to the module. Check continuity between module output and the neutral lug.
   Torque the terminal block screws to 8.9 inch-lbs.
6. TEMPORARY LIGHTING
   Each module is shipped with an orange jumper bar across the module input power and load output terminal blocks. Use of this jumper allows the circuit breaker feeding the module to provide temporary, full intensity lighting (no dimming function) during installation or troubleshooting periods. The jumper snaps into place in the module's terminal blocks.
7. ENERGIZE MODULE
   Apply power to the module by switching on the appropriate breaker. A load/module/circuit breaker schedule can be found in the LMP Lighting Management Panel installation instructions.
   Note: This breaker will be located in a separate panel on LMP FT (feed through) panels.
8. VERIFY MODULE COMMUNICATION
   The module's status LED will illuminate green to indicate there is communication with the LMP controller.
   See Figure 1 for details. (Controller power must be on)
9. OUTPUT LOADING
   Check the current on all outputs. See table 1 for details. No circuit output should exceed 8.3A. No single module should exceed 16.6A total.
10. DIMMER MODULE CONFIGURATION
    The dimmer modules are fully programmable using a Fresco Touchscreen station. A Fresco station must be used to set dimmer curves for loads other than reverse phase incandescent.
    - ELV & Incadescent (default)
    - MLV
    - Mark X
    - HiLume
    - Non-Dim
11. DE-ENERGIZE MODULE
    Remove power to the module by switching OFF the appropriate breaker breaker after the module is configured with appropriate Personality curve and dim level is set to 0% (OFF).
12. REMOVE SHORTING JUMPER PRIOR TO SWITCHING OR DIMMING LOADS
    With the jumper in place the loads WILL NOT switch or dim. The shorting jumper **must** be removed before attempting to dim or switch any loads.
    Power MUST be OFF while removing jumper bar!
    A small screwdriver is provided for use in removing or installing the jumper. Remove it by pulling it up and out of the terminal blocks. *See the illustration below for details.*
    Save the jumper for future use.
13. ENERGIZE MODULE
    Apply power to the module by switching ON the appropriate breaker.
14. Check dimmers by changing levels from 0-100% on all outputs.

WARNING: Do not change Personality (dimming curve) configuration when power is applied to loads; change to 0% (OFF) and use shorting jumper before attempting to reconfiguring the module.

NOTE: MLV loads require minimum loads (refer to manufacturer instructions; ensure 50% minimum load power at 100% dim level if minimum is not published.



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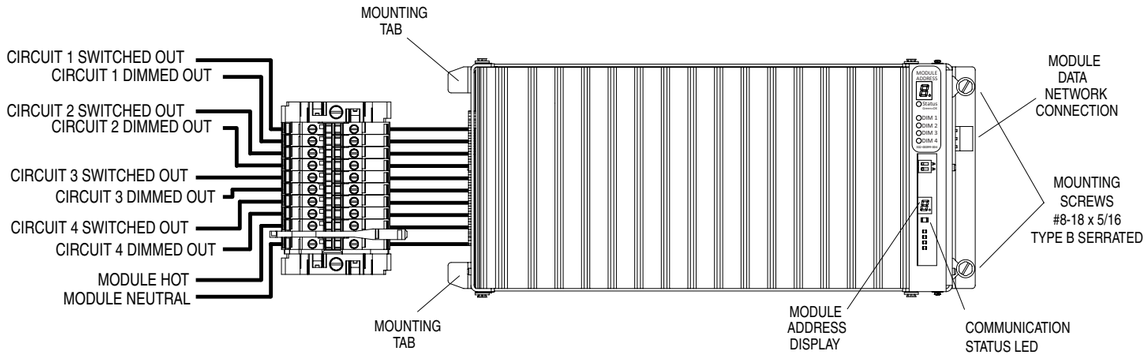

Figure 1 - LM4A MVOLT Details

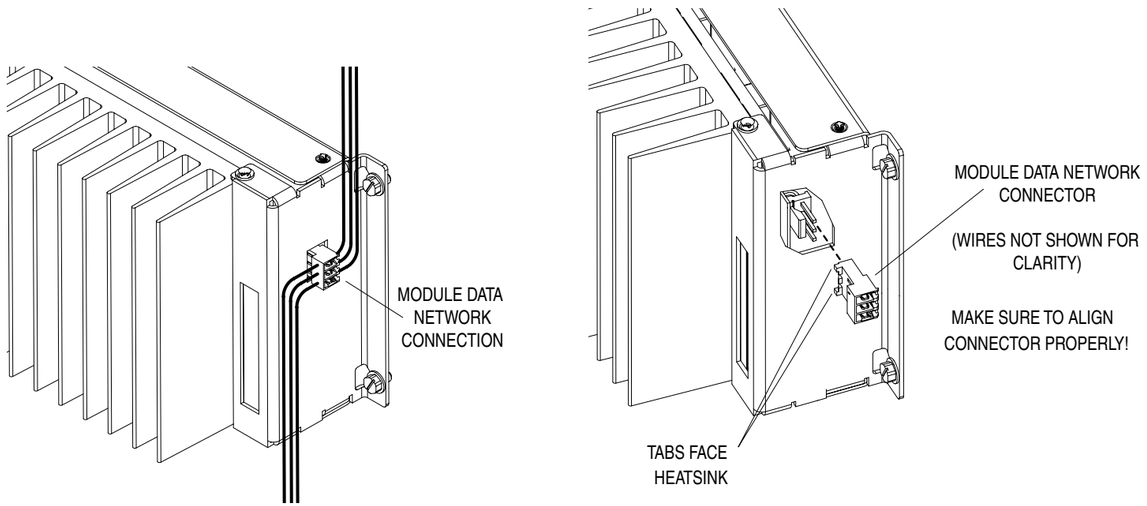
MODULE DATA NETWORK CONNECTION
MODULE DATA NETWORK CONNECTOR
(WIRES NOT SHOWN FOR CLARITY)
MAKE SURE TO ALIGN CONNECTOR PROPERLY!
TABS FACE HEATSINK

Figure 2 - LM Module Data Network Connector

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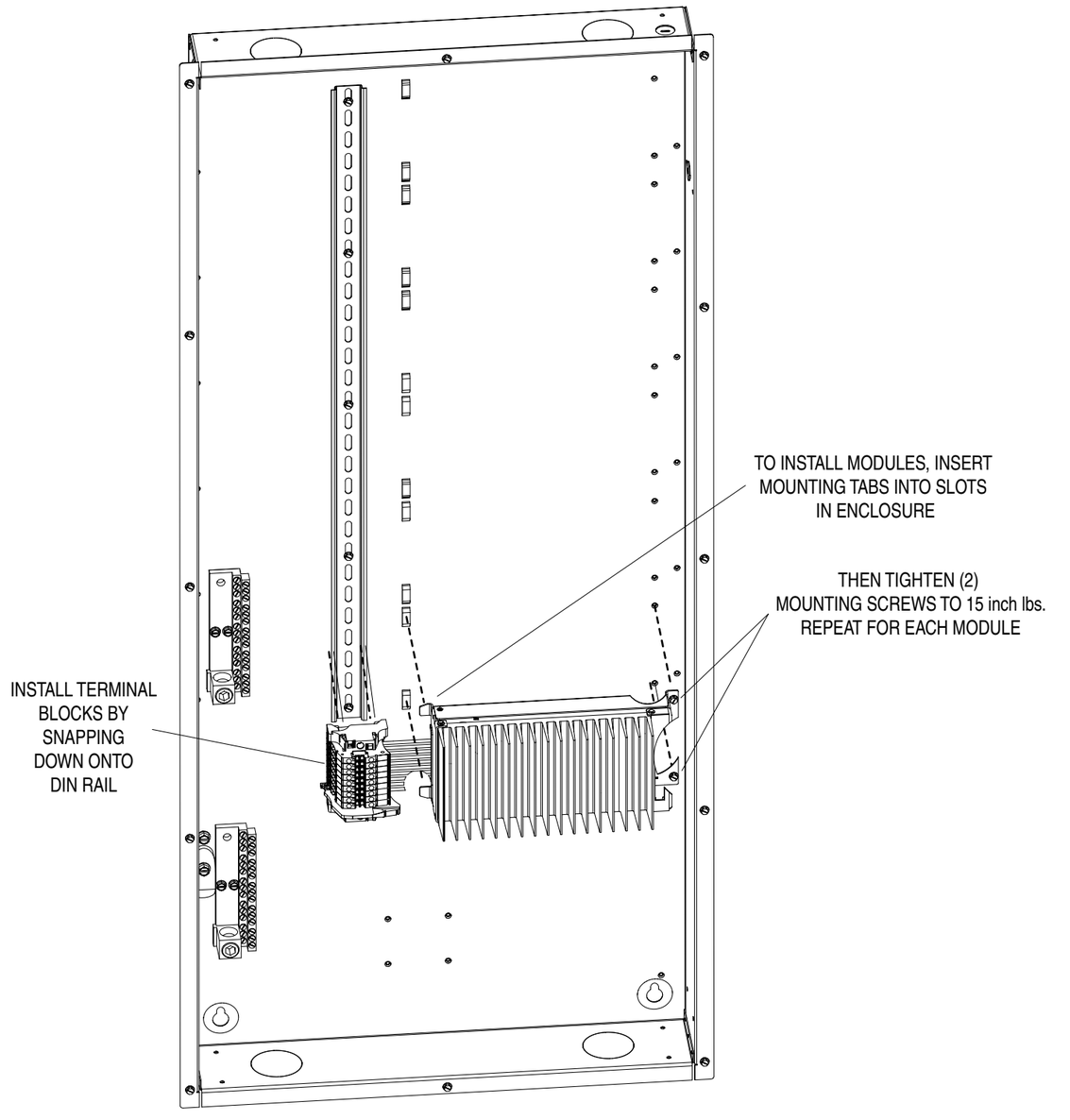
TO INSTALL MODULES, INSERT MOUNTING TABS INTO SLOTS IN ENCLOSURE
THEN TIGHTEN (2) MOUNTING SCREWS TO 15 inch lbs. REPEAT FOR EACH MODULE
INSTALL TERMINAL BLOCKS BY SNAPPING DOWN ONTO DIN RAIL

Figure 3 - LM Module Mounting

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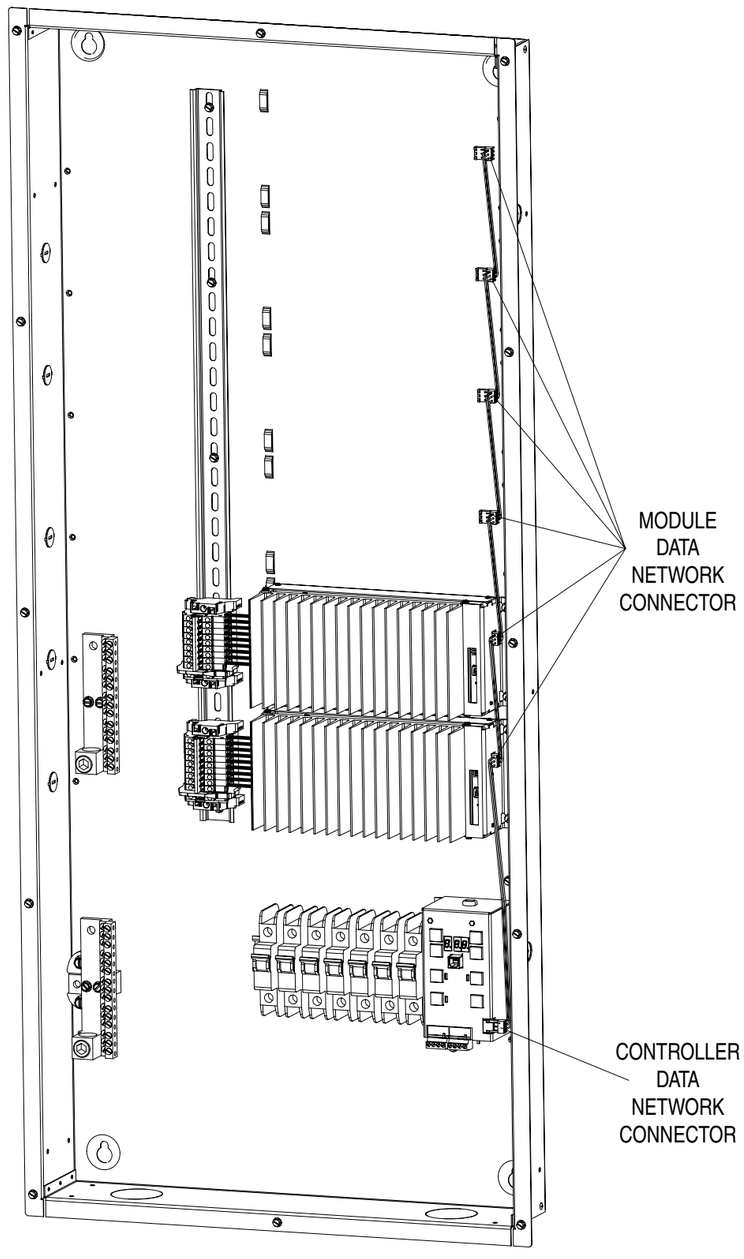

Figure 4 - Module Data Network Connectors

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LM4A MVOLT Dimmer Module

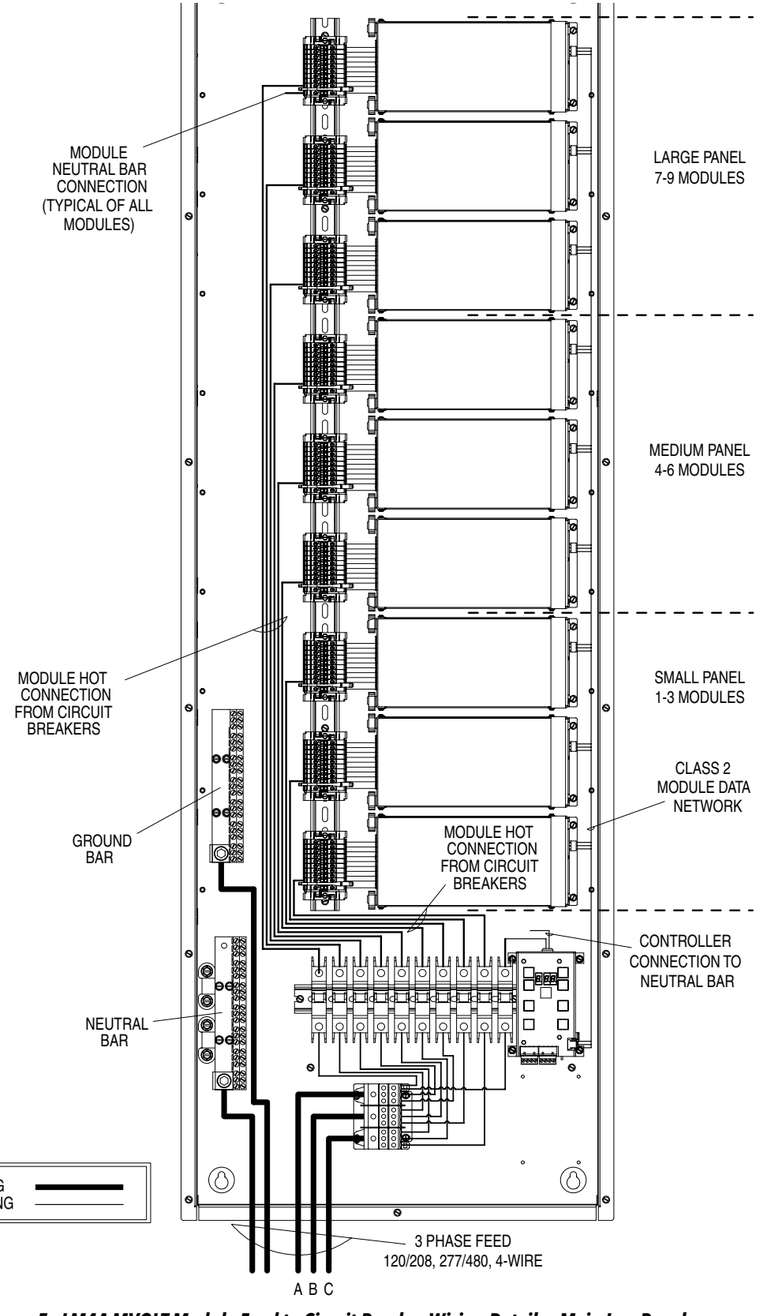

Figure 5 - LM4A MVOLT Module Feed to Circuit Breaker Wiring Details - Main Lug Panel

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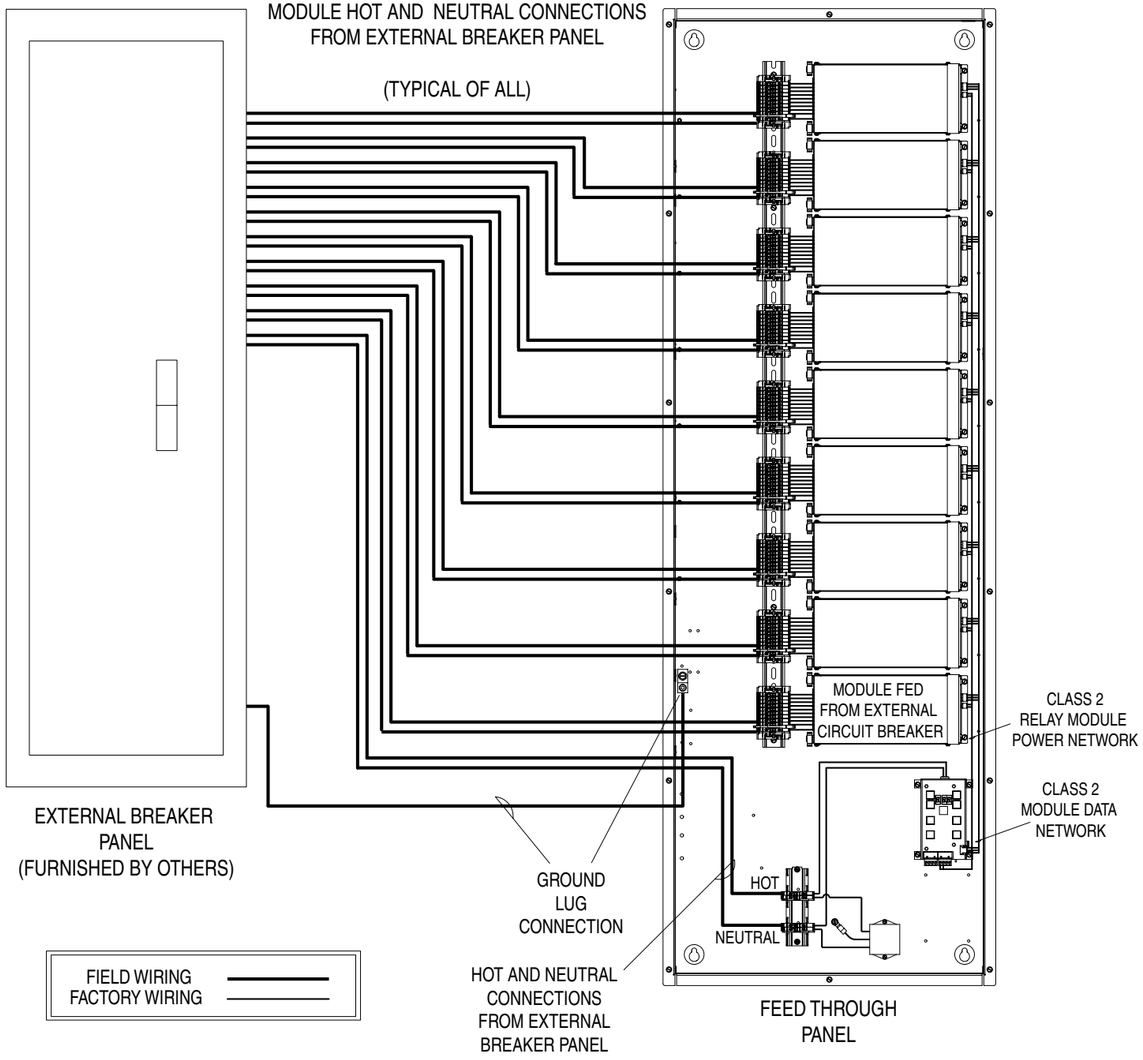

Figure 6 - Module Feed Wiring Details - Feed Through Panel

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Installation Instructions
LM4A MVOLT Dimmer Module

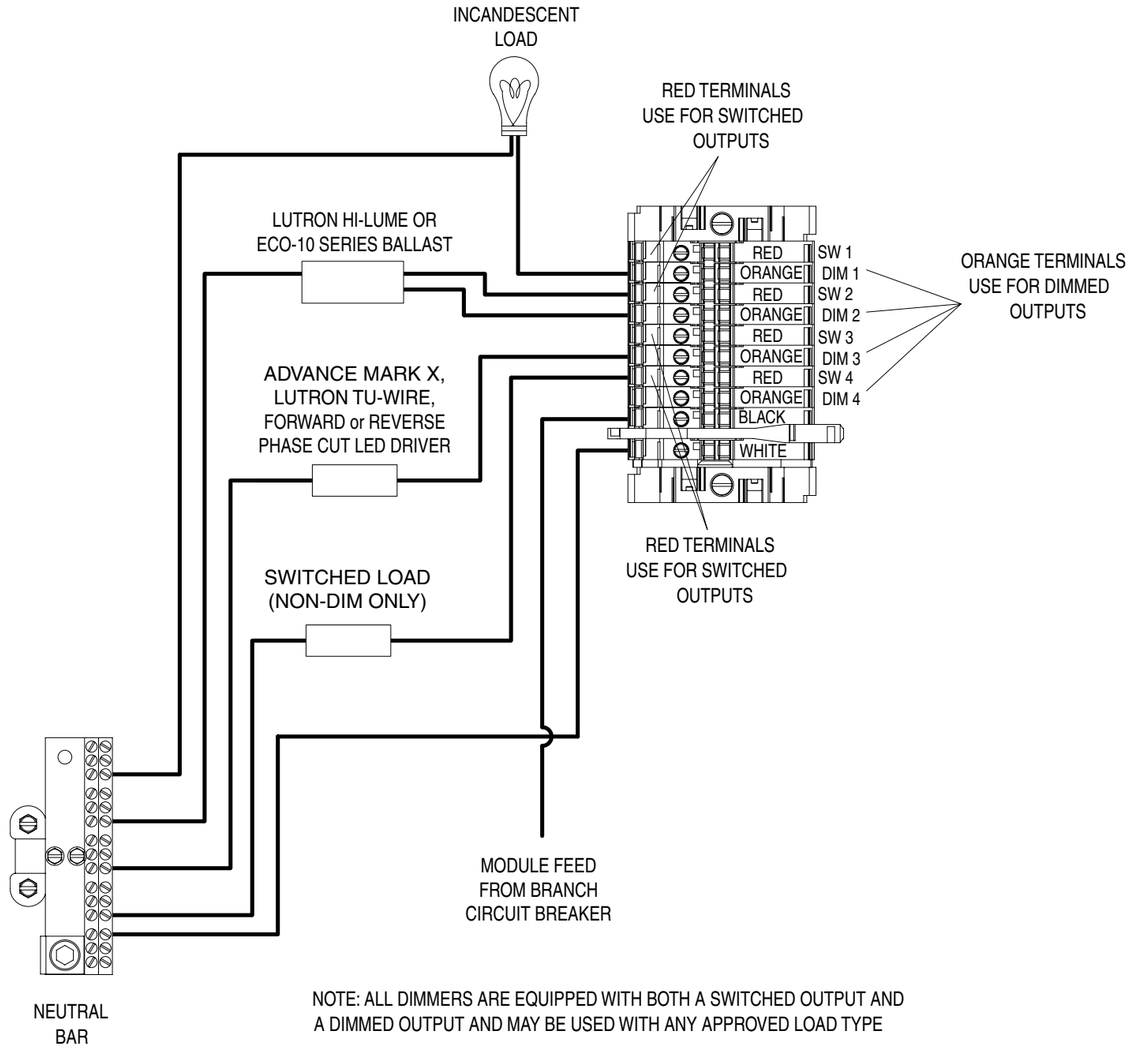

Figure 7 - LM4A MVOLT Load Wiring Details

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Troubleshooting		
7 Segment Display Error Code[1]:	Red Status LED:	
"E1"	Solid **Red**	**Error: Communication signal missing or distorted** 1. Check the communication wire harness connections and ensure that the plugs are fully inserted into the module and controller connectors. 2. Inspect the communication wires and repair or replace the wire harness if it is damaged. 3. Consult the factory for additional troubleshooting steps if the communication wires and connections appear OK.
"E2"		**Error: The input AC voltage is too low** 1. Measure the input circuit voltage with a voltmeter: it should be within 10% of its rating (e.g. 108V for a 120V circuit or 250V for a 277V circuit). 2. Check the input terminal blocks (HOT and NEUT) connections. 3. Check the input circuit breaker (if provided in non-FT panel). 4. Consult the factory if the measured input voltage is within 10% of the nominal circuit rating.
"E3"		**Error: The output is overloaded, or output wiring or loads are shorted** 1. Disconnect each output from the module and check for short circuits; correct any that are found before reconnecting the load circuit to the module. 2. Measure the load current for each output to verify that no individual output or the full module is not overloaded. Correct any overload condition by splitting up circuits which are too large onto multiple dimmer outputs.
"E4"		**Error: Module electronics failure** 1. Check the ambient temperature around the panel to verify that it is less than 400C. 2. Check if other modules inside the panel are overheating. 3. Consult the factory.
1. Note that "E" will flash for 0.5s followed by "#" for 0.5 seconds.		

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